

tion above recorded that there is in the spectrum of cyanogen a strong shaded band coincident with the very characteristic dark shaded band P, strengthens materially the evidence in favour of the existence of these bands in the solar spectrum; the more so as the series of lines at P has far more of the distinctive character of the cyanogen spectrum than any other series in the ultra-violet part of the solar spectrum.

However that may be, they contend against the hypothesis that if present the bands can be due to any vapour of carbon uncombined in the upper cooler region of the chromosphere. One object of their investigations has been to determine the permanence of compounds of non-metallic elements and the sensitiveness of the spectroscopic test in regard to them. It appeared probable that if such compounds existed in the solar atmosphere their presence would be most distinctly revealed in the more refrangible part of the spectrum, and it seems sufficiently clear that the presence of nitrogen in the solar atmosphere may be recognised through cyanogen when free nitrogen might escape detection.

### UNIVERSITY AND EDUCATIONAL INTELLIGENCE

OXFORD.—The Millard Scholarship in Natural Science lately founded at Trinity College has been awarded for the first time. The successful candidate is Mr. R. Bodey, from the Mining School, Bristol, and from the Royal School of Mines.

At Exeter College the Natural Science Scholarship has been awarded to Mr. B. Spencer, from King's College, London.

According to the report of the Delegates for unattached students, the number of students not attached to any college or hall has increased by twenty during the past year. Seventy unattached students have become members of colleges or halls during the year.

CAMBRIDGE.—The University of Cambridge Commissioners have apparently proposed their final arrangements as regards the University. There are many modifications from the original scheme in the direction of giving more freedom to the University, and on the whole in favour of scientific objects. A general financial board is to manage all University property and expenditure, and to control especially the college contributions. The rating of the colleges for University purposes is modified in the direction of increased fairness. The common University Fund derived from the colleges is to provide for all classes of University teachers, for the salaries of demonstrators, superintendents, and curators, for the erection, maintenance, and furniture of museums, laboratories, libraries, lecture-rooms; and in addition grants of money may be made from it for special work in the way of research, and for investigations in any branch of learning or science connected with the studies of the University. The amount of payments for buildings, and their maintenance, furniture, and apparatus, is not to exceed one-third of the income of the fund in any one year.

Practically speaking, there may be available in each year to the end of 1884, 2,000*l.* a year for these latter purposes and 4,000*l.* for investigators and teachers, and the college payments will rise definitely to 30,000*l.*, of which 10,000*l.* may be used for the purposes of buildings, and 20,000*l.* for teachers of all kinds.

It is no longer sought to force particular professors on particular colleges; the college may, if it prefers, pay the income of a Professorial Fellowship to the common fund. There are to be twenty-nine Professorial Fellowships, not assignable to particular professors, but distributed among the colleges.

The stipends of the Professors, payable by the University, are to have 200*l.* deducted from them if the Professor holds a Professorial Fellowship or a Headship. The stipends of Professors as now proposed are not so unequal as in the first proposed statutes. The payments (subject to the above-mentioned deduction) to the Regius Professor of Physic would be 700*l.*, Professor of Chemistry and the Cavendish Professor of Physics 850*l.* each, Physiology 800*l.*, Pathology 800*l.*, Botany, Zoology, and Woodwardian of Geology 700*l.* each, Anatomy 600*l.* The new Professorships are to be for (1) Physiology, (2) Pathology, (3) Mental Philosophy and Logic. The first two professors are not to undertake the private practice of medicine and surgery. When these shall have been established, the University may establish any other professorships it pleases, or has funds for.

The proposals for readerships are also to be remarkably modi-

fied; the minimum number of readers is now twenty. The subjects are to be within the control of the University; the readers are to be appointed as soon as funds can be provided conveniently from the common University Fund or from other sources. Readerships may be suppressed or created, according to the needs of study. The stipend is to be 400*l.* The readers are to be appointed by grace of the Senate on the recommendation of the General Board of Studies now to be created; but in each case the special Board of Studies with which the readership is connected must concur in the appointment, or it will lapse to the Council of the Senate.

University Lecturers (the next grade of teachers) may be college lecturers who throw open their lectures to the University, or they may be other persons approved by the Boards of Studies.

The payment to these lecturers from the University must be not less than 50*l.* The University may also appoint lecturers on subjects not immediately connected with any special Board of Studies, for shorter or longer terms. The separation of the Board of Studies in Physics and Chemistry from that of Biology and Geology is maintained. The constitution of the General Board of Studies is carefully and completely defined; but it is to do such work as the Senate commits to it, and in future a general University budget is to be prepared and submitted to the Senate.

The Cambridge Museums and Lecture Rooms Syndicate find the increase of annual grant from the University from 1,500*l.* to 2,000*l.* a year inadequate, owing especially to new outlay on new departments. They now have a balance of 821*l.* against them; and they ask for an additional 1,000*l.* per annum at once, feeling quite unable otherwise to maintain the museums in moderate efficiency with strict economy.

### SCIENTIFIC SERIALS

*Journal of the Franklin Institute*, September.—Experiments on the compression of air by the direct action of water, by J. P. Frizell.—Experiments on the strength of yellow pine, by R. H. Thurston.—The absolute economy of electric lighting, by R. Briggs.—Note on the artificial production of diamonds by the processes of Despretz, by E. J. Houston.

October.—Motion of viscous fluids, by T. Craig.—The steam yacht *Anthracite* and the Perkins system of high pressure steam, by G. Deane.—Coal gas engineering, by R. Briggs.—Holman's new illustration of cell-formation, by J. M. Child.—Joseph Henry, by A. M. Mayer.

*American Naturalist*, October.—S. A. Forbes, the food of the darters.—J. C. Russell, on the former extent of the triassic formation of the Atlantic slates.—C. C. Abbott, notes on stone implements found in New Jersey.—S. Lockwood, some noteworthy birds.—W. K. Higley, on the microscopical crystals contained in plants.—The editor's table.—Biology at the American Association at Boston. Recent literature.—General notes.—Scientific news.

*Reale Istituto Lombardo di Scienze e Lettere. Rendiconti*, vol. xiii. fasc. xvi., July 29.—On a particular univocal correspondence between elements of space with three dimensions, by F. Aschieri.—Case of unproductivity of corn, by G. Cantoni.—On the thermal and luminous phenomena manifested by the Leyden jar at the moment of its discharge, by E. Villari.—Transformation of aspartic acid into fumaric acid, by G. Korner and A. Menozzi.—First case of repeated peritoneal transfusion, with new and happy success, in an oligocitemic insane person, by C. Golgi and A. Raggi.—On the infirmity of Torquato Tasso, by A. Corradi.—Meteorological summary of the year 1879, from meteorological observations at the Brera Observatory, by P. Frisiani.

*Rivista Scientifico-Industriale*, September 15.—Further experiments with a Crookes' tube, by A. Righi.—Histology of the skin of Teleostean fishes, by A. Batelli.

### SOCIETIES AND ACADEMIES

#### LONDON

Entomological Society, October 6.—H. T. Stainton, F.R.S., vice-president, in the chair.—Sir Arthur Scott of Birmingham and Mr. F. E. Robinson were elected as ordinary Members.—Mr. McLachlan stated that last year he had exhibited

specimens of *Anthocoris nemorum*, an hemipterous insect supposed to be damaging the hops grown near Canterbury, but had then expressed his opinion that the insect was not the true culprit, its habits being probably carnivorous. This year he had received from the same correspondent some small larvæ which had been found in the cones, and these he considered were not only the true enemy of the hops, but were also the food of the *Anthocoris*.—Sir Sydney Saunders exhibited a series of apterous females of the new species of *Seteroderma*, adverted to at the previous meeting, and read remarks thereon.—Messrs. Kirby, Fitch, Ralfe, and the Rev. E. N. Gilbert exhibited several varieties of lepidoptera taken in this country and on the Continent, some of which, from the structure of the antennæ, were considered "hermaphrodite" forms.—Mr. Hildebrand Ramsden communicated a note on *Pyrophorus causticus*, a Cuban fire-fly.—Mr. Swinton read two papers entitled Some Experiments on the Variability of Lepidoptera undertaken during the year 1880, and exhibited specimens and figures in illustration.—Mr. Butler communicated a paper entitled Observations on the Lepidopterous Genus *Terias*, with descriptions of hitherto un-named forms from Japan.—Mr. Waterhouse communicated a paper on the Buprestidae from Madagascar.—Messrs. Kirby, Distant, and McLachlan called the attention of the Society to a method of publishing descriptions of new species pursued by M. André in recent parts of his work on European Hymenoptera. These were not only inserted on the cover of his quarterly parts, but even at the end of sheets of advertisements laid loosely between the pages of a part. It was regretted that no other course than that of protest and disapprobation could be applied in the interest of science to such a practice.

## PARIS

Academy of Sciences, October 18.—M. Wurtz in the chair.—M. Faye presented the *Connaissance des Temps* for 1882 (204th volume), and indicated several improvements, viz., tables giving, for all points of the globe where the next Venus transit will be visible, the instants of all phases of the transit, a table for determining the direction of the meridian from the Pole star, the positions of 300 important stars every ten days, and of ten polar stars daily, and empiric corrections of ephemerides of the moon.—Longitude of the coast of Brazil, by M. Mouchez. A scientific mission from the United States under Messrs. Green and Davis has, with the aid of the Transatlantic cable from Europe, fixed the position of the six points, Para, Pernambuco, Bahia, Rio de Janeiro, Montevideo, and Buenos Ayres; and the results show that the author's figures for the same places, obtained in 1860 and following years, by astronomical and chronometric methods, were nearly exact, the greatest error being 2'34s. (The *Connaissance des Temps* had adopted different numbers, which are shown to be in error 27'4s.) The author's errors being all of the same sign, a mere shifting of the Brazil coast about 2 sec. westwards (nearly 1 km.) would make the longitudes exact to a few tenths of a second. He compares the chronometric and astronomical methods, showing that chronometers, in absence of the telegraph, offer the surest and most simple means of determining longitude. The influence of temperature he corrected by means of a simple coefficient.—On the saccharine matters contained in the fruit of the coffee-tree, by M. Boussingault. He analysed some berries (from Brazil) that had been put in alcohol immediately after plucking, also the alcohol. The berry is poor in saccharine pulp compared with cherries and other stone fruit from which alcohol is got (it has 66 per cent. as against 90 for cherries and 95 for prunes). The distillation of the berries of coffee would hardly be lucrative or practicable (as Humboldt imagined).—Order of appearance of the first vessels in the inflorescence of *Milvora verna*, by M. Trécul.—On the resistance of animals of bovine species to splenic fever, and on the preservation of these animals by preventive inoculations, by M. Chauveau. He mentions that, contrarily to what is observed in France, it is in animals of bovine species that anthracoid diseases are more frequently met with in Algeria. He is inquiring what it is that favours the effects of spontaneous infection in the bovine species, so resistant to provoked infection, and hopes soon to be able to furnish the explanation. The preventive effect of inoculation he has proved in eight subjects of bovine species (four of which were Algerian).—On the photophone of Prof. Bell and Mr. Sumner Tainter, by M. Breguet. A drawing is given of the arrangement found most effective. At M. Breguet's place the phenomena have been obtained with the electric light over a distance of 15m. The articulation, though not perfect, was demon-

strative.—Spectroscopic studies of the sun at Paris Observatory, by M. Thollon. The sun has entered on a period of activity. M. Thollon gives figures of several striking recent protuberances. He frequently observes protuberances 'r' in height, and has seen several exceeding 2' and 3', and one about 8'. Some of them may nearly reach the limits of the corona. He indicates his new method of ascertaining the direction of the solar equator.—Principles of an algebraic calculus which contains, as particular species, the calculus of imaginary quantities and of quaternions, by M. Lipschitz.—On algebraic equations, by M. West.—Vibratory forms of circular pellicles of saposaccharic liquid (second note) by M. Decharme. This refers to the relative position of the nodals of each system. One finds identical laws for vibratory forms of any circular liquid surfaces, and for those of soapy pellicles; only the width of the zones is about six times smaller in the case of the former.—On the presence of cerium in the coal-formation of the valley of Saint-Étienne, by M. Mayençon.—On a very perfect reptile found in the Permian formation, by M. Gaudry. M. Roche found it at Igornay, and has presented it to the Paris Museum. M. Gaudry proposes to call it *Stereorachis dominans*. Its vertebrae are in striking contrast with those of other reptiles in the same bed; the centrums are in one piece, which adheres to the neural arc. Another mark of superiority is that its humerus has, in the distal part, a neuro-arterial canal. The *Stereorachis* was a pretty large carnivore. It has affinities with the Ganocephali and Labyrinthodonts, and perhaps still more with some of the animals in Mr. Cope's group of Pelycosaurians, in North America.—On the existence of a reptile of ophidian type in the *Ostrea columba* strata of the Charentes, by M. Sauvage.

## BERLIN

Geographical Society, October 9.—President Dr. Nachtigal, who congratulated Dr. Bastian on his return from his two years' exploration.—A letter from Dr. Buchner was read, dated September 27 of last year from Kimbundo. Since then, it has been learned, he has not only reached the residence of Muata Janvo, but has carried his exploration much farther. It is probable that he has gone northwards.—News was received from Dr. Lenz, which we refer to in our Geographical Notes. By the last news Herr Flegel had reached the confluence of the Niger and Binué, and his expedition was doing well.—The German expedition to East Africa was, according to the last news, at Muhatta, with Capt. Ramaeker's Belgian expedition, on the way to Tabora.—Prof. Credner of Halle read a paper on the glaciation of North Germany during the glacial period.

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